



## Breeding of Medium- Maturing Melon Varieties with High Quality Indicators and Resistant to Powdery Mildew

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**Abstract:** Long-term breeding work on the creation of melon varieties resistant to flour mildew disease was carried out at the Research Institute of Vegetable, Melon crops and Potato. As a result of the breeding work, the genes of resistance to powdery mildew disease were transferred to local varieties, and a melon variety was created, the fruits of which have high taste qualities. It was added to the state register in 2019.

**Key words:** Melon, breeding, variety, hybrid, powdery mildew.

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**Introduction.** Among the products consumed by the population in our republic, polys crops, which are very nutritious and have healing properties, occupy an important place. Eating melon helps to control many physiological processes in the human body. It is used as a medicine for atherosclerosis, kidney, stomach, liver, nerve, cardiovascular diseases, tuberculosis, tuberculosis and anemia [ 1; 5].

Melon is a very common fruit consumed all over the world and is an excellent source of biologically active compounds for humans due to its good taste and rich chemical composition. Melon contains glucose, fructose, vitamins A, D, C, K, E and some vitamins of group B [6].

In the Republic of Uzbekistan, on average, 150,000 hectares of melon are planted every year, of which 35-40% is occupied by melons. The yield from each hectare of land is 20-24 tons. One of the factors that negatively affect the yield of melons is powdery mildew and wilting disease, as well as the melon fly. In the years when these diseases and pests are widespread, the average yield decreases by 30-35%. Therefore, in the cultivation of abundant and high-quality melon products, it is important to firstly plant disease-resistant varieties adapted to each region in time, and secondly, to create varieties resistant to powdery mildew and wilting of melons.

**Research method and materials.** Crossbreeding, recrossing, and selection of local melon varieties with varieties resistant to powdery mildew were carried out.

The foreign variety Honey ACE, resistant to powdery mildew and fusarium, and the variety Kok Tinni 1087, resistant to local diseases, were used for selection. In the process of hybridization, the domestic variety Kok Tinni 1087 was used as the maternal form, and the foreign variety Honey ACE was used as the paternal form.

In the G<sup>2</sup> generation of hybrids, disease-resistant plants were backcrossed (backcrossed) 2 times with the local Kok tinni 1087 variety. Single and mass selection methods were used until the yield of the

created variety had genetic uniformity. Researches were conducted at the institute's Tashkent experimental site [ 4 ].

**Research results.** As a result of selection work, a 100% resistant to powdery mildew L-149 line was obtained from the BC2 (Kok Tinni 1087 x Honey ACE) × Kok Tinni 1087 hybrid. The core of this line comes in two variants, the L-149-129 line with blue core and the L-149-131 line with white core..

Prospective flour resistant to powdery mildew, flesh color green L-149-129 line was tested with Suyunchi-2 variety included in the State Register.

As a result of phenological observations, the L-149-129 line and the comparative variety Suyunchi-2 germinated in 6 days. No significant difference was observed in the opening of flowers of father and mother. The L-149-129 line ripened 5 days later than the comparative variety in 90 days, and the Suyunchi-2 variety ripened in 85 days.

Biometric measurements showed that the development of the L-149-129 line was strong, and the total length was up to 960,5 cm. Comparatively, this indicator is equal to 660,8 cm in Suyunchi variety. The number of lateral branches was 5,3 in the line, 4,2 in the comparative variety.

The fruit shape of L-149-129 line is oblong, oval, smooth surface, green color, fine mesh, flowerless, some of them have 3/1 yellow spots. The average weight of the fruit is 2.1 kg, large ones are 3.2 kg, the color of the flesh is green, the thickness is 3.4-4.5 cm, soft, soft, with a pleasant smell. The flour is 100% resistant to powdery mildew (Table 1).

1-жадвал. Description of the promising melon variety Kok Magiz (L-149-129 line) according to economic characteristics

Variety	Resistance to powdery mildew, %	Fruit weight, kg		Soluble dry matter content, %		The thickness of the meat, cm
		average	the most	average	the most	
Suyunchi-2 (St)	100	1,7	3,0	11,5	14,5	3,0-3,5
Kok Magiz	100	2,1	3,2	12,9	17,0	3,4-4,5

The total yield of the L-149-129 line was 21,3 t/ha, the comparative variety Suyunchi-2 was 19,4 t/ha, the quality yield of the line was 18,0 t/ha, the total yield was 84,5%, and the comparative variety compared to 1,8% more.

Line L-149-129 was submitted to the Agricultural Crops Varieties Testing Center under the name "Kok Magiz". Agricultural crops recommended for planting in the territory of the Republic of Uzbekistan in 2019 were included in the State Register [2].

A new variety of melon resistant to powdery mildew, Kok Magiz, was tested ecologically at the Andijan and Samarkand scientific experimental stations of the institute.

The result of the ecological test of the Kok Magiz variety of melon at the Samarkand Scientific Experiment Station was the total yield of 28,2 t/ha, and the quality yield was 24,7 t/ha. The amount of soluble dry matter in the fruit is on average 13,0%, the highest is 17,3%. The flour is 100% resistant to powdery mildew. In the Andijan scientific experiment station, the total yield was 25,0 t/ha, and the quality yield was 22,6 t/ha. The average amount of soluble dry matter in the fruit is 12,7%, the highest is 17,0%. It is 100% resistant to powdery mildew [3].

**Summary.** As a result of selection work carried out on the transfer of powdery mildew resistance to local varieties of melon, a medium-sized, high-quality, powdery mildew-resistant "Kok Magiz" variety was created.

In the ecological test carried out at the Andijan and Samarkand scientific experimental stations of the

Institute, the total yield was 25,0-28,2 tons per hectare, and the quality was 22,6-24,7 tons.

The amount of soluble dry matter in the fruit is on average 12,7%, the highest is 17,3%. It is 100% resistant to powdery mildew.

"Kok Magiz" variety was included in the State Register of agricultural crops recommended for planting in the territory of the Republic of Uzbekistan in 2019.

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